it can be shown that such a course is suitable to the circumstances of the locality in which the school is placed, yet it is not the intention of the Board to sanction the adoption of this special course in any fresh school." This decision is a little difficult to understand. If it can be shown at present that some schools, in which science takes a specially prominent part, are suitable to the locality in which the school is placed, it would appear reasonable to suppose that other localities in the future may demonstrate the need for a precisely similar type of school, and yet the Board has decided beforehand that—such demonstration notwithstanding—there shall be no more such schools. Experience has shown that the so-called "school of science" is capable of supplying just the training boys from elementary schools in manufacturing centres require to prepare them for their work in life, and it is to be hoped in these cases that every encouragement will be given to a definite course of study in science in the schools. All educationists of experience agree with the Board's opinion, expressed in subsequent paragraphs of the report, that premature specialisation in the work of ordinary secondary schools is to be discouraged, and that a well balanced curriculum, comprising literary and practical subjects taught in a scientific manner, is of prime importance; but such agreement does not preclude the possibility of applying special remedies to special needs. It is satisfactory to find that the report contains abundant evidence of a continued improvement in the work of secondary schools and technical institutions.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, November 16.—"The Transit of Ions in the Electric Arc." By A. A. Campbell **Swinton.** Communicated by the Hon. C. A. Parsons, C.B., F.R.S.

The paper describes an experiment designed to show that in the electric arc the positive and negative electrodes emit carriers or ions which are respectively positively and negatively charged, and, after travelling across the arc, bombard the opposite electrode. The method adopted resembles that employed by Perrin to prove the negative charge carried by kathode rays. A small hole was pierced axially through one of the carbon electrodes, and immediately behind this aperture was fixed an insulated Faraday cylinder of brass which had its aperture in line with, and facing the aperture in, the electrode. A galvanometer connecting the insulated cylinder and the pierced electrode measured any difference of potential between the two. The second electrode was an ordinary carbon pencil, and as this was made positive or negative it was found that positive or negative charges respectively were communicated to the insulated Faraday cylinder, provided the arc covered the aperture in the pierced electrode, but not otherwise. These results, which confirm the theory as enunciated above, were obtained both in air at atmospheric pressure and also *in vacuo* up to what could be obtained with a mechanical air pump. The galvanometer deflections increased considerably with the degree of exhaustion, and at any given degree a much larger deflection was obtained when the second electrode was made negative and the cylinder was being charged negatively than when the contrary was the case, this corresponding with the known fact that negative ions have a higher velocity than have positive ions.

Geological Society, November 8.—Dr. J. E. Marr, F.R.S., president, in the chair.—The coast-ledges in the south-west of the Cape Colony: Prof. E. H. L. **Schwarz.** The author compares the shelves of Cape Colony with those described on the European and American sides of the North Atlantic, and he places the "absolute base-level of erosion" at 12,000 feet in North America, 8000 feet in Europe, and 1200 feet in South Africa. With these varying heights he correlates the topography of the bordering continents—the sharp divides, open river-valleys, permanent rivers and deltas, of Europe and America, where the movement has been downward and has almost reached bottom, in contrast with the flat undenuded divides, the steep, narrow gorges, the waterfalls, and the rocky river-gates, of South Africa, which is on the upgrade and probably near the top.—The Glacial period in Aberdeenshire and the southern border of the Moray Firth: T. F. **Jamieson.** One of the most interesting features in the glacial geology of Aberdeenshire is the Red Clay found along the eastern coast of the county. The purer masses of clay seem to have formed in a sheet of water lying in front of the ice, between it and the land, during the retreat of the Aberdeenshire ice, and at a time when the coast was submerged beneath water to a level exceeding 300 feet above the present coast-line. Evidence of the northward motion of the ice is given from striæ, the transport and removal of flints, and the bending-over of the edges of folia of gneiss. The Red Clay is underlain by a Grey Clay, and sometimes covered by a similar one. The author has recently discovered remains of a still older, dark indigo in colour, and containing small fragments of sea-shells. On the southern border of the Moray Firth the author gives examples of glacial marking on the rocks, and refers to the transport of boulders, including a huge mass of Oolitic rocks 40 feet thick, a mass of clay once considered to be an outlier of Lias, "pipe-rock," and the fossiliferous Greensand débris at Moreseat, now considered to have been transported by ice.

November 22.—Dr. J. E. Marr, F.R.S., president, in the chair.—On a new specimen of the chimæroid fish *Myriacanthus paradoxus*, Ag., from the Lower Lias of Lyme Regis (Dorset): Dr. A. S. **Woodward.** The author, having proved that the dorsal fin-spine of the so-called *Ischyodus othorhinus* is identical with an ichthyodorulite which has been named *Myriacanthus granulatus*, inferred that the larger ichthyodorulite *M. paradoxus* belonged to the same fish as the larger dentition named *Prognathodus Guentheri* by Egerton. This question has been settled by the discovery by Mr. S. Curtis, in the Lower Lias of Black Ven, of a dorsal fin-spine in direct connection with a mass of decayed cartilage, dermal plates, and teeth. The new fossil warrants the conclusion that Myriacanthus is a chimæroid, closely similar to the Upper Jurassic Chimæropsis, with (1) a median chisel-shaped tooth in front of the lower jaw; (2) a few tuberculated dermal plates on the head; and (3) a tuberculated dorsal fin-spine. In these respects it differs from all other known chimæroids—even from the comparatively primitive types which have been discovered during recent years in the Japanese seas. The Myriacanthidæ, in fact, have still no nearer ally than Callorhynchus, with which Egerton originally compared his so-called *Ischyodus orthorhinus*.—The rocks of the cataracts of the River Madeira and the adjoining portions of the Beni and Mamoré: Dr. J. W. **Evans.** The crystalline rocks of the cataracts of the River Madeira and the lower waters of its tributaries are part of a ridge with a north-westerly and south-easterly strike, similar to that of the Andes in the same latitudes. This strike is especially prevalent in equatorial regions. With the exception of comparatively recent alluvial deposits and a few pebbles of chert, pronounced by Dr. G. J. Hinde to be of marine origin, but uncertain date, only crystalline rocks are met with in the falls. They all appear to be igneous, and are mostly massive in character, though some dyke-rocks occur. In places they are typical gneisses, and they are often banded, but in some cases they show no signs of foliation. The prevailing type is acid, with a considerable proportion of alkalies, especially soda; but some of the rocks are distinctly basic in character.—The Doncaster earthquake of April 23, 1905: Dr. Charles **Davison.** The Doncaster earthquake of 1905 was a twin, with its principal epicentre half a mile north of Bawtry, and the other about 4 miles east of Crowle and close to the centre of the disturbed area of the Hessle earthquake of April 13, 1902. The distance between the two epicentres is about 17 miles. The disturbed area contains about 17,000 square miles, including the whole of the counties of Lincoln, Nottingham, Derby, Stafford, Leicester, and Rutland, the greater part of Yorkshire, and portions of Lancashire, Cheshire, Shropshire, Worcestershire, Warwickshire, Northamptonshire, Cambridgeshire, and Norfolk. The originating fault runs from about E. 38° N. to W. 38° S., and appears to be nearly vertical within the south-western focus and inclined to the south-east in the north-eastern focus. The first and stronger movement took place within the south-western focus. A twin-earthquake

is probably due to the differential growth of a crust-fold along a fault which intersects it transversely, the first movement, as a rule, being one of rotation of the middle limb, accompanied by the almost simultaneous slip of the two arches, and followed soon afterwards by a shift of the middle limb.

Zoological Society, November 14.—Mr. G. A. Boulenger, F.R.S., vice-president, in the chair.—*Exhibitions.*—(1) The mounted head and skin of a white water-buck (*Kobus ellipsiprymnus*) from British East Africa; (2) two mounted heads of the rhinoceros, one of which showed abnormal growth of the anterior horn, whilst the other bore four horns, viz. two on the nose, one between the ears, and one nearly at the back of the head: Colonel W. H. **Broun.**—(1) Specimens of a very rare and interesting marsupial, hitherto unique, in the Paris Museum, viz. *Dactylopsila palpator,* Milne-Edw., which differed from *D. trivirgata* by the extremely thin prolonged second finger; (2) two tusks which had been obtained by Baron Maurice de Rothschild during his recent expedition to Abyssinia: Hon. W. **Rothschild.**—Microscopic preparations of a new hæmosporidian from the blood of an African stork (*Leptoptilus crumeniferus*): A. S. **Hurst.** The exhibitor pointed out that this parasite belonged to the genus Halteridium, but differed from *H. danilewskyi* in its greater size (stade moyen 7–10 μ), and also in its method of sporulation, in which the merozoites were more numerous, smaller, and arranged in a ball-like rounded mass. The name *Halteridium crumenium* was proposed for the new species.—A letter from Mr. William Rodier, of Tambua Station, Cobar, N.S.W., concerning the continued success of Mr. Rodier's plan for counteracting the rabbit pest: Dr. P. L. **Sclater.** The plan consisted simply in catching the rabbits alive and killing the females only, letting the males go free.—The *Satyrus indicus* of Tulpius, said to be the type of the genus Simia: H. **Scherren.** Remarks were made with the view of showing that the animal was a gorilla, and was recognised before the middle of the eighteenth century as differing from a chimpanzee. The distinction between the *tschego* and the *ngina* was, he said, known in England in the first quarter of the nineteenth century.—*Papers.*—On the papillary ridges in mammals, chiefly primates: Dr. W. **Kidd.** The arrangements of the ridges on the hand and foot of twenty-four species were shown and described, and their functions discussed. Arguments were brought forward to show that their primary function was to increase the delicacy of the sense of touch.—On the mammals brought back by the Tibet Mission: J. L. **Bonhote.** The collection was very small, containing examples of only some eight species, three of which were described as new, viz.:—(1) *Vulpes vulpes waddelli,* subsp.n. Similar to *V. v. flavescens,* but the whole coloration much brighter, especially the median dorsal area, which was deep red and markedly distinct from the colour of the flanks. (2) *Cricetulus lama,* sp.n. Allied to *C. phaeus,* but much greyer in general coloration, and the tail somewhat longer and stouter. (3) *Microtus* (*Phacomys*) *waltoni,* sp.n. Closely allied in skull characters to *Ph. blythi.* The general coloration, however, was fulvous-grey, slightly greyer over the anterior part of the body.—Notes on the geographical distribution of the okapi: Dr. E. **Lönnberg.**—Observations on the Goral (*Cemas goral*) in Burma: Major G. F. **Evans.**—A collection of the mammals of Crete: Miss D. M. A. **Bate.** Examples of sixteen forms, of which six were described as new subspecies, were contained in the collection, and these were enumerated and remarked upon in the paper.

Physical Society, November 24.—Prof. J. H. Poynting, F.R.S., president, in the chair.—The dielectric strength of air: A. **Russell.** The author makes the assumption that for distances apart greater than about a millimetre when the disruptive voltage is V kilovolts the effective P.D. between the ends of the Faraday tube which is subject to the maximum stress is $V-\epsilon$, where ϵ is the minimum sparking voltage. Applying formulæ which he has deduced, using this assumption, to tests of Heydweiller, Steinmetz, Algermissen, &c., the author finds that they agree in making the dielectric strength of air 38 kilovolts per cm. approximately. A knowledge of this quantity enables us to find, not only the disruptive voltages between electrodes of many geometrical shapes, but it also enables us to find the "critical" pressure for overhead electric-power transmission at high pressures.—On the electrical conductivity of flames for rapidly alternating currents: Dr. H. A. **Wilson** and E. **Gold.** The following is a summary of the results:—(1) For rapidly alternating currents a flame containing an alkali salt vapour behaves like an insulating medium of high specific inductive capacity. (2) The conductivity of different alkali-salt vapours in a flame for rapidly alternating currents, as measured by the apparent capacity of platinum electrodes immersed in the flame, varies as the square root of the conductivity of the same salt vapours for steady currents. This result confirms the view that the negative ions from all salts have the same velocity. (3) The apparent capacity varies nearly inversely as the square root of the maximum applied P.D. (4) The apparent capacity is nearly independent of the number of alternations per second. (5) The apparent capacity is nearly independent of the distance between the electrodes. (6) The results (1) to (5) are in agreement with the ionic theory of the conductivity of the flame for rapidly alternating currents when the velocity of the positive ions and the inertia and viscous resistance to the motion of the negative ions are neglected in comparison with the effects due to the number of ions per c.c. (7) The apparent capacity per sq. cm. area of the electrodes is equal to $\sqrt{ne/8\pi V_0}$, where n is the number of positive ions per c.c., e the charge on one ion, and V_0 the maximum applied P.D. (8) Not more than one molecule in ten of salt molecules is ionised at any instant, but each molecule is probably ionised and re-combines several million times per second. (9) The steady currents observed through salt vapours in flames are very far from the maximum possible currents corresponding to the number of ions produced per second.—On the lateral vibrations of loaded and unloaded bars: J. **Morrow.** This is a continuation of the work previously communicated by the author on the vibration of bars of uniform and varying sectional area. By means of a method of continuous approximation the elastic displacement curves and the frequency of the lateral vibrations of bars can be determined to any required degree of accuracy. The method is first applied to some cases of unloaded bars, and also to massless bars carrying concentrated loads. The paper then deals with the principal problems of loaded bars which are themselves of appreciable mass.

MANCHESTER.

Literary and Philosophical Society, October 31.—Prof. W. Boyd-Dawkins, F.R.S., vice-president, in the chair.—On a biological aspect of cancer: F. J. **Faraday.** The author directed attention to a paper with this title read by him in 1899, and printed in vol. xliii. of the society's *Memoirs.* Several of the conclusions recently arrived at by the cancer research committee were therein foreshadowed, *e.g.* that cancer is not a microbic disease, but is due to an arrest of development and differentiation among the somatic cells, growth being restricted to mere gemmation.—Some recent researches into the nutrition of the egg cell in certain plants: Dr. Marie C. **Stopes.** The special group of plants on which the author worked was that including the pine trees, Ginkgo, and the Cycads, viz. the Gymnosperms. Though the egg cells in this group are in many ways different from those of the flowering plants, the results have some bearing on the question of nutrition of egg cells in general, as well as some points of general technique. Much of the work was done in conjunction with Prof. Fujii, of Tokio, with whom the author is publishing a joint paper on the subject in Germany.—A model to illustrate the propagation of sound waves: Dr. H. **Ramsden.** The model consists of a series of magnetised needles, suspended vertically so as to vibrate in the same plane with their like poles downwards, and is designed to show (since the needles were constructed and regulated to have equal times of oscillation) most of the phenomena of the longitudinal transmission of waves.

November 14.—Sir W. H. Bailey, president, in the chair.—Seaweed: C. L. **Barnes.** The author read some extracts from the classical writers which showed in how little esteem seaweed was held by the ancients, it being regarded by them as the most useless of things. He then showed, by an enumeration of some of the uses to which

seaweed is now put, that the moderns had effectually removed this reproach that had been put upon it.—An experiment showing some convection effects in a heated liquid: C. H. **Burgess.** A **U**-tube is filled in the lower half with hydrochloric acid coloured by a dye, and in the upper with plain acid, and the liquids are allowed to diffuse so as to give a shaded band. The liquid is then heated by the passage of an electric current, and is resolved into a series of well marked layers.

PARIS.

Academy of Sciences, November 27.—M. Troost in the chair.—On the distillation of copper: Henri **Moissan.** Copper can be readily distilled in the electric furnace. When the vapour is condensed on a cool body, a felted mass of copper filaments is obtained, presenting all the properties of ordinary metallic copper. Copper at its boiling point dissolves carbon, graphite, partly crystalline and partly amorphous, separating out on cooling.—On the benzylidene derivatives of anthrone and anthranol: A. **Haller** and M. **Padova.** Amongst the reduction products of anthraquinone, Liebermann isolated a compound $C_{14}H_{10}O$, to which one of two formulæ could be assigned. The reactions described in the present paper show that this behaves as a tautomeric body, giving rise to derivatives of the ketone, anthrone.—Researches on intensive nitrification: A. **Muntz** and E. **Laine.** The principal aim of the present research was to find out a means of producing nitre on a large scale for the manufacture of explosives. Animal charcoal has been found to be the best support for the nitrifying organism when strong solutions of ammonium salts are employed, a litre of animal charcoal giving 8·1 grams of nitre per day. The maximum concentration of ammonium sulphate permissible has been found to be 7·5 grams per litre. It is shown that it would be possible to produce nitrates in quantities sufficient for the manufacture of explosives in the case of the external supply being stopped.—On the total eclipse of the sun of August 30, 1905: Ch. **André.** It is shown that the study of the eclipse by a series of micrometric measurements gave results at least as good as the direct determination of the times of the external contacts.—On the luminous intensity of the solar corona during the total eclipse of August 30, 1905: Charles **Fabry.** The observations were carried out at Burgos with a Lummer photometer. The intensity found was about three-quarters that of the full moon.—On groups of continuous curves: Maurice **Fréchet.**—On the non-uniform divergence and convergence of Fourier's series: H. **Lebesgue.**—On the coefficient of utilisation of helices: Edgar **Taffoureau.** A motor of 205 horse-power, working two helices of 7·767 metres diameter, can sustain a useful weight of 506 kilograms.—On the definition of the magnifying power of microscopical objectives: L. **Malassez.** The author proposes to define the magnifying power as the magnification produced by the objective at unit distance from its posterior face.—Researches on the purity of electrolytes. The determination of an upper limit of hydrolysis of concentrated saline solutions by the use of symmetrical liquid chains presenting a fresh surface of contact: M. **Chanoz.**—The difference of potential under which the kathode rays are produced: Jean **Malassez.** The author's experiments tend to show that, contrary to the views put forward by J. J. Thomson, the difference of potential under which the kathode rays are produced is the difference actually existing between the anode and the kathode.—The decomposition of ammonium sulphate by hot sulphuric acid in the presence of platinum: Marcel **Delépine.** In the presence of platinum, ammonium sulphate is destroyed by boiling sulphuric acid. The fact has an important bearing on the determination of nitrogen by the Kjeldahl method.—On a commercial silicide of copper: Paul **Lebeau.** A commercial specimen of copper silicide contained 51 per cent. of free silicon, 44 per cent. of copper silicide, and 4 per cent. of silicide of iron. The silicide was isolated, and, contrary to the accepted view, and in spite of the excess of free silicon, was found to consist of $SiCu_4$ instead of $SiCu_2$.—Chemical oxydases acting in the presence of hydrogen peroxide: G. **Baudran.**—The molecular refraction and dispersion of compounds containing the acetylenic grouping: Charles **Moureau.** It is shown that the additive law in the case of the molecular refraction and dispersion of substituted acetylenes does not correspond with the experimental facts.—The petrographical examination of some volcanic rocks from the Tuamotou Islands and Pitcairn Island: Albert **Michel-Lévy.**—On sterile fruits developed without the intervention of the male element: Th. **Solacolu.** The reserves accumulated at the base of the flower or in the neighbouring parts with a view to the normal development of the pistil after fertilisation are utilised in certain species, even when fertilisation has not taken place, with the formation of a false fruit.—On a new enemy of the coffee plant in New Caledonia: I. **Gallaud.** The disease is known locally as *Koleroga* or *Candellilo*, and is caused by a fungus, *Pellicularia Koleroga*.—Statistical researches on the evolution of the height in flax: Mlle. M. **Stefanowski** and M. Henri **Chrétien.**—The cervical covering in the nauplius stage of *Artemia salina*: Nicolas **de Zograf.**—On a supposed case of reproduction by budding in annelids: Ch. **Gravier.**—The trophoplasmic spherules of the ciliated infusoria: J. **Kunstler** and Ch. **Gineste.**—Researches on a supposed ovulase of spermatozoids: Antoine **Pizon.** Pieri's theory, that the segmentation of the egg is started by a ferment (ovulase) of spermatic origin, has been examined experimentally under more rigorous conditions than those obtaining in Pieri's original experiments, and no evidence of the existence of such a ferment was obtained. The author's conclusion is that Pieri's experiments were not carried out with sufficient care.—The toxic power of the seminal fluid and general considerations on the poisonous character of the genital products: Gustave **Loisel.**—On the influence of the salts intimately related to the albumenoids and to the diastatic materials in proteolysis: G. **Malfitano.**—On the function of salts on the production of activity in the pancreatic juice: the specific action of calcium: C. **Delezenne.**—The oxidation of organic substances by ferrous sulphate in the presence of extracts of animal tissues: F. **Battelli.**—The emersion of the land during the Cretaceous period in Greece: Ph. **Négris.**—On the geological structure of the Cantabrian Cordillera in the province of Santander: Pierre **Termier.**—On the Carboniferous and Permian deposits in Corsica: M. **Deprat.**—The layer of fossil vertebrates of Maragha: M. **de Mecquenem.**—Measurements of the intensity of the earth's electric field and of the ionisation of the atmosphere during the total eclipse of the sun of August 30, 1905: G. **Le Cadet.**

CALCUTTA.

Asiatic Society of Bengal, November 1.—Some remarks on the geology of the Gangetic plain: E. **Molony.** The present valley of the Ganges in the United Provinces of Agra and Oudh has been excavated from an older alluvium, the eroding power of the river being due to submergence in the lower part of the course of the river at some remote period. The older alluvium sometimes forms islands in the midst of the newer alluviums, or Khadir, and is characterised by the presence of nodular limestone (Kankar). The boundary between the two formations is usually distinct. The main direction of the course of the river is determined by the channels in the older alluvium, erosion in which takes place very slowly. In stiff clay the average rate is 11 feet per annum. The records of the Lucknow boring indicate that the strata at a depth of more than 1000 feet are inclined, probably from north to south, and this is taken as evidence of a relative submergence of the southern portion of the Gangetic plain.—Note on the species, habits, and external characters of the dugong: Dr. N. **Annandale.** The author has examined a considerable series of Indian and Australian skulls and skeletons of Halicore. He regards the differences between them as individual, and sees no reason to recognise more than one species, *H. dugong*. He gives the measurements of a fully adult male recently caught in the Gulf of Manaar, and describes its external characters, especially those of the head and mouth. He points out that the dugong has probably altered its habits considerably within the last half-century, at any rate in Indian waters, and shows that its food includes true algæ.—*Hedyotis sisaparensis*, a hitherto undescribed Indian species: Captain A. T. **Gage.** Description of a new species of Hedyotis found by the author in the Calcutta Herbarium, from the Nilgiri district. It is most nearly related to *H. mollis*

(Wall.).—Materials for a flora of the Malayan Peninsula, No. 18: Sir George **King**, K.C.I.E., F.R.S., and J. S. **Gamble**, F.R.S. Owing to an unforeseen cause of delay, it has been found necessary to postpone the publication of the natural orders No. 75, Apocynaceæ, No. 76, Asclepiadaceæ, and No. 77, Loganiaceæ, for a short while; consequently the present part, No. 18 of the "Materials for a Flora of the Malayan Peninsula," contains the orders which succeed, viz. No. 79, Hydrophyllaceæ, to No. 85, Lentibulariaceæ, inclusive, together with No. 87, Bignoniaceæ, and No. 88, Pedalinceæ. No. 78, Gentienaceæ, has already appeared in part xvii., and No. 86, Gesneraceæ, will come later on.

DIARY OF SOCIETIES.

THURSDAY, DECEMBER 7.

ROYAL SOCIETY, at 4.30.—The Periodogram and its Optical Analogy; with an Illustration from a Discussion of Observations of Sun-spots: Prof. A. Schuster, F.R.S.—(1) On a Property which holds good for all Groupings of a Normal Distribution of Frequency for two Variables, with Applications to the Study of Contingency-tables for the Inheritance of Unmeasured Qualities; (2) On the Influence of Bias and of Personal Equation in Statistics of Ill-defined Qualities: an Experimental Study: G. Udny Yule.—On the Inheritance of Coat-colour in Horses: C. C. Hurst.—Further Experiments on Inheritance in Sweet Peas and Stocks (Preliminary Account): W. Bateson, F.R.S., E. R. Saunders, and R. C. Punnett.—A Biometrical Study of Conjugation in Paramæcium: Dr. Raymond Pearl.—On Mathematical Concepts of the Material World: A. N. Whitehead, F.R.S.—The Determination of the Osmotic Pressure of Solutions by the Measurement of their Vapour Pressures: The Earl of Berkeley and E. G. Hartley.—The Vertical Temperature Gradients on the West Coast of Scotland and at Oxshott, Surrey: W. H. Dines, F.R.S.—The Combination of Hydrogen and Oxygen in contact with Hot Surfaces: Dr. W. A. Bone, F.R.S., and R. V. Wheeler.—Fifth and Sixth Catalogues of the Comparative Brightness of the Stars: in Continuation of those printed in the *Phil. Trans.* for 1796–99. (Prepared for press from the original MS. Records by Colonel J. Herschel, R.E., F.R.S.): The late Dr. Herschel, F.R.S.—On the Cytology of Malignant Growths: Prof. J. B. Farmer, F.R.S., J. E. S. Moore, and C. E. Walker.—A Gas Calorimeter: C. V. Boys, F.R.S.

SOCIETY OF ARTS, at 4.30.—The Partition of Bengal: Sir James A. Bourdillon, K.C.S.I.

CHEMICAL SOCIETY, at 8.30.—The Constitution of Nitrites, Part I., Two Varieties of Silver Nitrite: P. C. Rây and A. C. Ganguli.—The Products of Heating Silver Nitrite: E. Divers.—Ethyl Piperonylacetate: W. H. Perkin, Jun., and R. Robinson.—A Contribution to the Chemistry of Saccharin: F. D. Chattaway.—The Action of Heat on α-Hydrocarboxylic Acids, Part II.: H. R. Le Sueur.—Studies on Optically Active Carbimides, Part II., The Reactions between 1-Menthylcarbimide and Alcohols: R. H. Pickard, W. O. Littlebury, and A. Neville.—The Action of Ultra-violet Light on Moist and Dried Mixtures of Carbon Monoxide and Oxygen: S. Chadwick, J. E. Ramsbottom and D. L. Chapman.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—The Charing Cross Company's City of London Works: W. H. Patchell.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY, at 8.—Concrete Mixers: Dr. J. S. Owens.

LINNEAN SOCIETY, at 8.—On the Ætiology of Leprosy: Dr. Jonathan Hutchinson, F.R.S.—Some Notes on the Life-history of *Margaritifera Paneseae*: A. W. Allen.—*Exhibition*: Photographs of a Luxuriant Specimen of *Shortia uniflora*, in the Rock-garden of Mr. W. T. Hindmarsh, at Alnwick.

RÖNTGEN SOCIETY, at 8.15.—The Spontaneous Action of Radium and other Bodies on Gelatin Media: J. Butler Burke.

FRIDAY, DECEMBER 8.

ROYAL ASTRONOMICAL SOCIETY, at 5.—Results of Recent Investigations Relating to Sun-spot Periods: Prof. A. Schuster.—On the Present State of Lunar Nomenclature: S. A. Saunder.—On a New Method of Determining the Moon's Position Photographically: E. B. H. Wade.—Reproduction photographique des Réseaux photographiques: H. Bourget.—(1) Position of the Axis of Mars: (2) Comparative Charts of the Region following δ Ophiuchi: Percival Lowell.—Comparison of the Results from the Falmouth Declination and Horizontal Force Magnetographs on Quiet Days in Years of Sun-spot Maximum and Minimum: Dr. Charles Chree.—Note on the Astronomical Value of Ancient Statements of Solar Eclipses: Prof. Simon Newcomb.—On the Conditions Determining the Formation of Cloud Spheres and Photospheres: A. W. Clayden.—On Testing Parabolic Mirrors; with some Results of the Tests as Applied to some Mirrors at Oxford: Rev. C. D. P. Davies.—*Promised paper*: On the Astronomical Observations recorded in the Nihongi, the Ancient Chronicle of Japan: E. B. Knobel.

MALACOLOGICAL SOCIETY, at 8.—(1) A Revision of the Species of Cyclostomatidæ and Liotiidæ occurring in the Persian Gulf and North Arabian Sea; (2) Description of Two Species of Marine Shells from Ceylon: J. Cosmo Melvill.—A Pteropod Alias: (*a*) C. Hedley, (*b*) E. R. Sykes.—(1) Descriptions of Four new Species of Marine Shells from Ceylon; (2) Description of a new Species of Physa from N.W. Australia: H. B. Preston.—Notes (1) on the Dates of Publication of J. D. Wilhelm Hartmann's "Erd- und Süsswasser-Gasteropoden," 8vo, St. Gallen, 1840; (2) On Some "Feeding Tracks" of Gastropods: (3) On Cement as a Slug-killer: B. B. Woodward.

MONDAY, DECEMBER 11.

SOCIETY OF ARTS, at 8.—The Measurement of High Frequency Currents and Electric Waves: Prof. J. A. Fleming, F.R.S.

TUESDAY, DECEMBER 12.

ZOOLOGICAL SOCIETY, at 8.30.

FARADAY SOCIETY, at 8.—The Physics of Ore Flotation: J. Swinburne and Dr. G. Rudorf.—The Concentration of Metalliferous Sulphides by the Flotation Process: Prof. A. K. Huntington.—The Ions of Pure Water: Prof. J. Walker, F.R.S.

INSTITUTION OF CIVIL ENGINEERS, at 8.—*Adjourned Discussion*: The Steam-Turbine: Hon. C. A. Parsons, C.B., F.R.S., and G. G. Stoney.—

WEDNESDAY, DECEMBER 13.

SOCIETY OF ARTS, at 8.—The Commerce and Industries of Japan: W. F. Mitchell.

THURSDAY, DECEMBER 14.

ROYAL SOCIETY, at 4.30.—*Probable papers*: An Investigation into the Structure of the Lumbo-sacral-coccygeal Cord of the Macaque Monkey (*Macacus sinicus*): Miss M. P. Fitzgera'd.—On the Distribution of Chlorides in Nerve Cells and Fibres: Prof. A. C. Macallum and Miss M. L. Menten.—The Mammalian Cerebral Cortex, with Special Reference to its Comparative Histology. I. Order Insectivora: Dr. G. A. Watson.—Observations on the Development of Ornithorhynchus: Prof. J. T. Wilson and Dr. J. P. Hill.—Further Work on the Development of the Hepatomonas of Kala-Azar and Cachexial Fever from Leishman-Donovan Bodies: Dr. L. Rogers.—The Action of Anæsthetics on Living Tissues. Part I. The Action on Isolated Nerve: N. H. Alcock.—Report on the Psychology and Sociology of the Todas and other Indian Tribes: an Abstract of Work carried out by the Aid of the Gunning Fund of the Royal Society for the year 1901–2: Dr. W. H. R. Rivers.—On the Sexuality and Development of the Ascocarp of *Humaria Granulata*, Quel.: V. H. Blackman and Miss Helen C. I. Fraser.—On the Microsporangia of the Pteridospermeæ with remarks on their Relationship to Existing Groups: Robert Kidston, F.R.S.—The Araucarieæ, Recent and Extinct: A. C. Seward, F.R.S., and Miss S. O. Ford.

MATHEMATICAL SOCIETY, at 5.30.—On Well-ordered Aggregates: Prof. A. C. Dixon.—Tables of Coefficients for Lagrange's Interpolation Formula: Col. R. L. Hippisley.—On the Representation of certain Asymptotic Series as Convergent Continued Fractions: Prof. L. J. Rogers.—On a New Cubic Connected with the Triangle: H. L. Trachtenberg.—Some Difficulties in the Theory of Transfinite Numbers and Order Types: Hon. B. A. W. Russell.—The Imaginary in Geometry: J. L. S. Hatton.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—*Adjourned Discussion*: The Charing Cross Company's City of London Works: W. H. Patchell

FRIDAY, DECEMBER 15.

INSTITUTION OF MECHANICAL ENGINEERS, at 8.—*Adjourned Discussion*: The Seventh Report to the Alloys Research Committee: On the Properties of a Series of Iron-Nickel-Manganese-Carbon Alloys: Dr. H. C. H. Carpenter, and Messrs. R. A. Hadfield and Percy Longmuir.—*Paper*: Behaviour of Materials of Construction under Pure Shear: E. G. Izod.

PHYSICAL SOCIETY (at Royal College of Science, South Kensington), at 7.—Exhibition of Electrical, Optical and other Physical Apparatus.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Tests of Street Illumination in Westminster: E. E. Mann.

AËRONAUTICAL SOCIETY, at 8.—The Acoustical Experiments carried out in Balloons by the late Rev. J. M. Bacon: Miss Gertrude Bacon.—The Aëromobile: F. Webb.—A New Continuous Impulse Petrol Motor for Dynamic Flying Machines: W. Cochrane.

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